Uninsured Kentuckians

Social Costs Exceed the Cost of Medical Care

The health of the people is really the foundation upon which all their happiness and all their powers as a state depend.
Benjamin Disraeli, 1877

By Amy L. Watts and Michal Smith-Mello*

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   Several states have conducted similar cost-benefit analyses, and each of these state-level studies employed the same, widely adopted and peer-reviewed methodology developed by the national Institute of Medicine. This methodology assigns an economic value to forgone health, quality of life, and years of life experienced by those who do not have health insurance. These estimates of economic losses are simply that, estimates derived from an economic model. They in no way translate into dollars that can be captured or reassigned for other purposes. Rather, they are illustrative of the potential social cost of having a significant uninsured population in the state, one that may be much higher or lower than these estimates suggest. They are, however, the most authoritative estimates of the social cost of having an uninsured population that are available to us at this time.

For many years, health care research has documented disparities in the United States between those who have health insurance and those who do not. Those who are insured benefit from easier access to and use of health care. In turn, they enjoy better health and a higher quality of life. By contrast, the estimated 45.8 million people in the United States who do not have public or private health insurance[1] generally get less preventive health care, receive diagnoses only after diseases have reached more advanced stages, and, when diagnosed, generally receive less therapeutic care and experience higher mortality rates.[2] In short, uninsured people tend to live sicker and die younger. Each year, an estimated 18,000 U.S. deaths are attributable to the health risks the uninsured face.[3] Such a toll makes the lack of health insurance among adults aged 25 to 64—the core of the U.S. labor force—the sixth leading cause of death in the nation, ahead of diabetes, respiratory disease, and AIDS.[4]

   A growing body of research at the state and national level examines some of the larger societal costs associated with having a population without health insurance, costs that extend well beyond those borne by uninsured people and their families. Indeed, the consequences of an uninsured population affect us all. Society absorbs the cost of an uninsured population in ways that are often hidden, such as higher hospital charges to the privately insured that help offset uncompensated costs. Other costs, such as the cumulative value of lost workdays attributable to not having health insurance, are real but not readily quantifiable.

   Here, we examine *some* of the quantifiable costs associated with having uninsured Kentuckians and compare these costs to the es-

Dr. Amy L. Watts is an economist and Ms. Smith-Mello is a senior policy analyst at the Center.

timated cost of the health care that uninsured people could be expected to use. Based on our conservative estimates, we conclude the following:

   • The Commonwealth would realize societal savings far greater than the additional cost of the health care that uninsured Kentuckians would be expected to consume given access to health care services comparable to that of the insured population.
   • The social benefit of providing health care coverage to the uninsured exceeds the cost by between $254 million and $871 million.
   • The dollar benefit to the uninsured population of Kentucky, were they to receive full heath care, would amount to between $621 million and $1.2 billion.
   • The estimated costs of uncompensated health care in 2004 exceeds $500 million, and the out-of-pocket costs paid by uninsured Kentuckians in that same year are about $438 million.

   Note, however, that we do not estimate the cost of providing them with health insurance, only the cost of their medical care—a subtle, but important distinction. Moreover, we make no assumptions about who would pay for this medical care or how it would be financed. Clearly, who pays and how it is financed are fundamentally important issues that need to be addressed for the uninsured to receive adequate medical care.

The Social Costs of Uninsured Populations

Our study follows the approach and the methodology used by the Institute of Medicine (IOM) in its seminal study, *Insuring Health*, a six-report series published between 2001 and 2004.[5] The IOM study and subsequent studies, including state-

level cost-benefit analyses,[6] assume a societal perspective, as we do here. Further, these studies conclude that while the uninsured themselves bear the greatest costs of uninsurance in the form of poorer health and shorter lives, ultimately, uninsurance is a health risk at the population level with costs that are borne by society. Viewing uninsurance from a societal perspective follows guidelines adopted by such groups as the President's Council of Economic Advisers[7] and the Panel on Cost-Effectiveness in Health and Medicine, a nonfederal panel convened by the U.S. Public Health Service whose consensus-based recommendations guide analyses of the cost-effectiveness of health care and medicine. The Panel argues that this perspective represents the public interest rather than the interest of any one group within society.

A vast body of research has validated the relationship between uninsurance and the costly consequences of forgone health among the uninsured. A 2003 analysis of studies of the relationship between having health insurance and measurable improvements in health concluded that, were the uninsured to have access to health care, annual earnings alone would increase by 15 to 20 percent.[8] In addition, the IOM study developed a conceptual framework for evaluating the consequences of uninsurance and further documented the health disparities that arise between the insured and uninsured.[9] Among them: the uninsured are less likely to receive preventive and screening services, and uninsured cancer patients are more likely to die prematurely, largely as a result of delayed diagnosis.[10] A significant research contribution of the IOM Committee on the Consequences of Uninsurance comes in the form of a study by Elizabeth Richardson Vigdor, quantifying the value of health forgone due to uninsurance. Vigdor builds on earlier research documenting the consequences of uninsurance and the conceptual framework developed by the IOM Committee to estimate the dollar value of the costs associated with these consequences (see Appendix 1 for methodological discussion). Since this value takes into account the costs borne solely by the uninsured and not the external costs associated with a sizable population lacking health insurance (one in six Kentuckians under 65 years old, for example), it constitutes a *lower-bound* estimate of the economic losses resulting from uninsurance.

As illustrated in Table 1, the IOM study has categorized known costs associated with the lack of health insurance.[11] They include costs that are internal, affecting only the uninsured individual and his or her family, and external, that is, extending into broader society. For the uninsured, the costs include lost health and longevity; financial risk; uncertainty, and anxiety within families with one or more uninsured members; and lost wages. Uninsurance has a ripple effect: the losses that uninsured people experience reach beyond their doorsteps. External costs include, among others, diminished workforce productivity and population health and the efficacy of governments at all levels that rely on the revenues generated by wages and consumer spending. Public revenues may be less robust, opportunities to make broad societal improvements may be lost, and budget cuts may become necessary. Moreover, the health care system on which we all rely is vulnerable because it shoulders much of the cost of caring for the uninsured. In turn, the stability, availability, and quality of health care services, including vital public health functions, are undermined. Though subtle

TABLE 1 Costs Consequent to Uninsurance		
	Internal or Private Costs	**External or Spillover Costs**
Health Care Service Costs	• **Out-of-pocket expenditures for health care services***	• **Expenditures for uncompensated care** (primarily transfer costs)
Other Costs	• **Greater morbidity and premature mortality** • **Productivity losses** • **Family financial uncertainty and stress, depletion of assets** • Developmental losses for children • Diminished sense of social equality and of self-respect • Lost income of uninsured breadwinner in ill health	• Diminished quality and availability of personal health services • Diminished workforce productivity • Diminished public health system capacity • Diminished population health • Higher taxes, budget cuts, loss of other uses for public revenues diverted to uncompensated care • Higher public program costs connected with worse health

* Costs in bold are those that are estimated in dollar values for the purposes of this study.
Source: Adapted from the Institute of Medicine Committee on the Consequences of Uninsurance, Hidden Costs, Value Lost: Uninsurance in America (Washington: National Academies Press, 2003), 31, Figure 2.2.

and generally unacknowledged, the consequences of uninsurance come at cost to all of us.

As in the IOM reports, we estimate the dollar value of only those costs that appear in bold print in Table 1. The full *economic cost* (that is, excluding the transfer payments designated in Table 1) of uninsurance to society would include all of these costs, in that *they would no longer exist under a system of full coverage for all*. For example, the forgone health and financial risk and uncertainty attributable to uninsurance would not exist under a system in which the uninsured had access to their health care, but the uncompensated care cost would exist under such a system and would be part of the total cost of their health care needs. Again, neither the IOM study nor this study quantifies all of these costs; rather they estimate only some. Were we to estimate all of these costs, the total value of the social cost would, of course, be considerably greater. Consequently, the estimates of social costs presented in our study, as well as in the IOM study, are conservative, given the dearth of data and research that would permit quantification of all of the costs identified here.

Thus, as the IOM concludes, "Viewed from the broadest perspective, the lack of health insurance is a health risk at the population level. Likewise, universal coverage, however achieved, can be considered a health intervention at the population level."[12] By logical extension, a population of uninsured people also represents an economic risk with the potential for undermining the larger society's capacity to prosper. These studies find that the greatest cost to society of a large uninsured population is increased mortality and morbidity. In turn, the greatest benefits to society, were the insurance disparity removed, would be better health and longer life.

Forgone Health and Financial Uncertainty

Here we adopt the widely used methodology outlined in the IOM's fifth report, *Hidden Costs, Value Lost: Uninsurance in America*,[13] which developed cost estimates for the mortality and morbidity attributable to the lack of insurance and examined them in the context of the cost of additional care implied by the type of coverage offered by insurance (see Appendix 1 for methodological discussion). These estimates are based on the concept of health capital, a method developed previously within an extensive

body of peer-reviewed research.[14] In addition, the IOM study uses an analytical approach similar to that used by federal regulatory agencies that assess the potential benefits of regulatory change relative to their cost. The economic analysis on which the IOM conclusions are based follow this model in that they assign a value to the health individuals lose as a result of being uninsured to determine whether health interventions or policy changes would be beneficial (in this case, providing the same level of access to health care for the uninsured that the insured have).

We begin with an estimation of the cost of the most immediate losses experienced by the uninsured, forgone health, i.e., sickness or death. Next, using cost estimates developed by the IOM, we affix a cost to the financial risk and uncertainty Kentucky's uninsured experience. Were they to receive full health care coverage, the uninsured would gain the value of forgone health and financial uncertainty, and it would be counted as benefits to these members of society. Again, these costs do not reflect *any* of the larger and doubtless greater benefits that would be realized by society at large as a consequence of improved health, increased longevity, and increased financial certainty alone. The total value of these benefits to the uninsured, were they to receive full health care coverage, is approximately $621 million to $1.2 billion annually.

Forgone Health. Forgone health represents the largest and most immediate cost associated with the lack of health insurance.[15] These consequences lie within the most immediate circle of what is ultimately an expanding sphere of negative consequences that result from uninsured populations. But the effect on the well-being of families and individuals who lose income and quality of life due to the illness or death of a breadwinner or another household member can be profound. From outright disintegration and deprivation to increased anxiety and financial uncertainty, the adverse consequences of forgone health can be devastating.

In Kentucky, we find significant evidence of forgone health care and poor health outcomes among the uninsured. As shown in Table 2, the percentage of uninsured Kentuckians who were sick but did not see a doctor in the past year was more than three times greater than that of the insured. The percentage of uninsured people who did not fill a prescription in the past year was double that for the insured, 50 percent compared with 24 percent. More than three and a half times the percentage of uninsured never went to a doctor in the past year, compared with the insured. And, as shown, a higher portion of uninsured people reported being in fair or poor health than did those with insurance, 35 percent compared with 22 percent.

While our estimate encompasses the value of an individual's productive capacity over the years of potential labor force participation, it is not the only reason that we as a society value good health. Rather, this estimate represents the value an individual places on his or her own life in particular states of health. According to the Kentucky Health Insurance Research Project's findings, approximately 9 percent or 338,000 Kentuckians under 65 years old were without insurance for the *entire* past year. Using Vigdor's lower and upper bounds on the value of a forgone healthy life year and the midpoint of these bounds, we present three estimates, as shown in Table 3. She estimates the average value of per person forgone health due to uninsurance to range from approximately $1,645 to $3,280 annually (see Appendix 1 for further discussion of how these estimates were obtained). We find that the estimated aggregate value of forgone health due to uninsurance for the study year alone ranged from $606 million to $1.2 billion.[16]

TABLE 3
Benefits of Health Insurance, 2004
(in millions of dollars)

	Low	Mid	High
Annual economic value of forgone health due to full-year uninsurance	$606	$907	$1,208
Annual economic value of costs due to added risk and financial insecurity related to full-year uninsurance	$15	$22	$30
Annual Benefits of Health Insurance	$621	$929	$1,238

Source: KLTPRC analysis of Institute of Medicine and US Census Bureau data

Financial Risk and Uncertainty. Our findings illustrate some of the ways unmanageable health care costs exert significant financial pressure on families and individuals. Kentuckians who do not have health insurance are consistently far more likely to report a range of negative financial consequences due to health care expenses. As shown in Table 4, the uninsured in our state are more than twice as likely to report having problems with paying medical bills, being contacted by a collection agency, exhausting savings, or being forced to make life changes to pay medical bills. Perhaps most alarming, nearly a quarter of uninsured Kentuckians reported having gone without basic necessities as a result of high medical bills, more than three times the rate among insured residents. While the percentage of uninsured Kentuckians going without basic necessities is markedly higher, it is noteworthy that out-of-pocket medical expenses are now having a dramatic effect on the lives of many insured Kentuckians as well, a far larger population than that of the uninsured.

TABLE 2
Health Care Access and Health Status Among Working-Age Kentuckians, by Insured Status, 2005

	Uninsured	Insured
Sick/had a medical problem but did not go to a doctor	70%	22%
Did not fill a prescription for medicine due to cost	50%	24%
Never went to a doctor	22%	6%
Health is fair or poor *	35%	22%
Number of observations	286	1782

*Other possible responses were excellent, very good, or good.
Source: UK Center for Rural Health, Kentucky Long-Term Policy Research Center, and UK Survey Research Center

TABLE 4
Indicators of Increased Financial Risk Due to Health Care Costs for Working-Age Kentuckians, by Insured Status, 2005

	Uninsured	Insured
Problems paying a medical bill	67%	25%
Contacted by collection agency about medical bills	48%	21%
Unable to pay for basic necessities due to high medical bills	23%	7%
Used all or most of savings to pay medical bills	31%	14%
Number of Observations	286	1782

Source: UK Center for Rural Health, Kentucky Long-Term Policy Research Center, and UK Survey Research Center

Based on its analysis, the IOM calculated a dollar value for the financial uncertainty the uninsured face as a result of not having health insurance. The estimated value of the risk uninsured individuals bear, which they would not assume if insured, was placed at between $40 and $80 per person in 2001 dollars.[17] Using these bounds and their corresponding midpoint, the aggregate value of these individual costs is approximately $15 million to $30 million annually for all Kentuckians under the age of 65 who have had no health insurance for a full year.[18]

The relatively small value of the reduction in financial risk that health insurance would bring to those who lack it helps to explain why some individuals who could afford insurance or who are eligible for public coverage forgo it. The "cost" of the extra financial risk that such individuals bear may be outweighed by the value of personal resources (money, time and effort, personal dignity) that are conserved by not purchasing health insurance or applying for public program benefits.

The final row in Table 3 shows the total value of forgone health due to uninsurance and the financial insecurity and uncertainty the uninsured face. These estimates range from approximately $621 million to $1.2 billion annually for the full-year uninsured in Kentucky for 2004. Were the uninsured to receive care at the same level as the uninsured in the state, these costs would no longer be incurred and thus would become the benefits of such an intervention.

Uncompensated Care and Out-of-Pocket Costs

For the uninsured, access to health care services is often limited to a "safety net" of providers, which includes hospitals, community health centers, some private physicians' charity care, free clinics, primary care centers, and rural health clinics, all of whom shoulder part of the burden of uncompensated care. Here we estimate the uncompensated care costs of hospitals, community health centers, private physicians, and free clinics.[19]

Uncompensated Care Costs

Approximately 18 percent of Kentuckians under 65 years old surveyed in the summer of 2005 were without health insurance at some point in the preceding year. This population represents more than 635,000 nonelderly Kentuckians. Overall, we estimate uncompensated care costs at over half a billion dollars in 2004, while the out-of-pocket costs borne by the uninsured are estimated at approximately $438 million.[20]

Hospitals. While a broad range of providers serve uninsured patients, the largest share of uncompensated care, in dollar terms, is delivered by hospitals (see Figure 1). To the uninsured, hospitals have evolved into a role they were never meant to fill—a first choice for primary medical care. Emergency departments have been transformed from a triage setting for urgent care needs into places where the indigent go for basic health care. Of the adults surveyed in Kentucky, 13 percent of the uninsured said the hospital emergency department or emergency room, as it is more commonly known, is the

type of place where they "usually go" when they have a health or medical problem, compared with 3 percent of the insured.

Use of emergency hospital facilities for routine primary care, whether by the insured or the uninsured, represents one of the most inefficient and costly uses of our health care resources. According to the annual survey of hospitals conducted by the American Hospital Association, Kentucky hospitals incurred $400 million in costs to treat the uninsured in 2004 (see Table 5). Of these costs, $243 million were reimbursed by disproportionate share (DSH) payments from Medicaid and Medicare. These DSH charity care payments can only be used to provide care to uninsured patients with incomes below 100 percent of the federal poverty level. Kentucky hospitals bear the remaining cost of uncompensated care, approximately $157 million in 2004 alone.

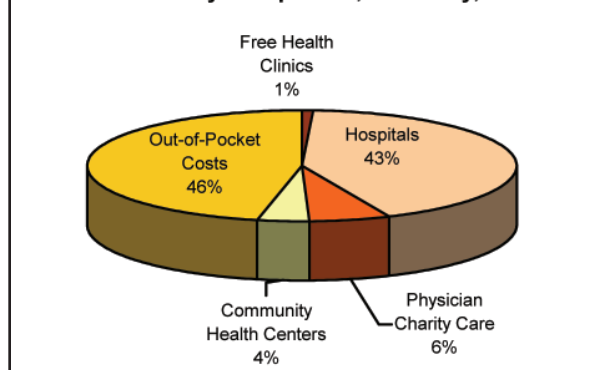| TABLE 5 Cost of Health Care for the Uninsured by Component, Kentucky, 2004 (in millions of dollars)	
Hospitals	$401
Community Health Centers	$37
Free Health Clinics	$8
Physician Charity Care	$56
Estimated Uncompensated Care Costs	$502
Out-of-Pocket Costs	$438
Total Costs of Care for the Uninsured	$940

Note: Other possible sources of uncompensated care not included here are rural health clinics, primary care centers, other charity care, and local health departments.

Community Health Centers. Community health centers (CHCs) are another facet of the health care system that primarily treats low-income patients, including the uninsured. To become a CHC, an organization must apply for and receive grant dollars from the Bureau of Primary Health Care in a national competition. CHCs differ from other similar health care delivery facilities in their governance, breadth of services, obligation to provide care irrespective of the patient's ability to pay, required location in underserved areas, and specific grant funding. The responsibility for overall planning and direction of CHCs lies with a community group of volunteers who serve as the board of directors and receive no compensation. The goal of the CHC model is to improve the health of the community by being responsive to changing community needs and providing medical care within the community context.

In 2004, 15 CHCs operated 56 health care delivery sites in 35 of Kentucky's 120 counties. The geographic and service gaps evident in these numbers are more precisely captured by data: the number of clinics per 100,000 people living at or below 200 percent of the federal poverty level is 3.3 in Kentucky compared to 5.2 nationally.[21] Of the more than 192,000 Kentucky patients served in 2004, approximately 46 percent were uninsured compared

FIGURE 1
Percentage Distribution of Costs of Care for the Uninsured by Component, Kentucky, 2004

Free Health Clinics 1%
Out-of-Pocket Costs 46%
Hospitals 43%
Community Health Centers 4%
Physician Charity Care 6%

to 40 percent nationally.[22] The estimated cost of uncompensated care for the uninsured delivered by Kentucky's CHCs was approximately $37 million in 2004 (see Table 5).

Free Clinics. The term "free health clinic" refers to any agency or facility engaged in rendering medical care to an individual without expectation of charge, compensation, or reimbursement from the individual, a government agency, or a private insurer. Free health clinics provide primary, dental, social, and other health or social services free of charge to the uninsured, underinsured, and working poor. The clinics do not serve patients with private or public insurance. They rely on local resources, donations, and volunteers to keep their doors open.

Approximately 32 self-designated free health clinics operated in Kentucky in 2004, 21 of which were members of the Kentucky Free Health Clinic Association. These 32 clinics were asked to complete a questionnaire that sought information about their operating budgets, number of patients served, and other information that would enable us to quantify the value of their services to the uninsured. Of the clinics surveyed, 15 returned completed questionnaires. These 15 clinics reported serving 13,190 patients in a total of 26,572 visits. They reported on average 19 patient care hours per week and 21 weekly administrative hours. According to these data, these 15 organizations had an annual operating budget of approximately $2 million and provided in-kind services valued at approximately $2 million to the uninsured in 2004. Extrapolating these values to the remaining clinics brings the estimated total value of uncompensated care provided by Kentucky's free health clinics to approximately $8 million in 2004.

Physicians' Charity Care. Physicians have long been a primary component of the nation's safety net, providing charity care to patients privately in their practices or volunteering at health centers or with other organizations. However, a 2006 survey by the Center for Studying Health System Change shows a decline in physician charity care in the face of a growing uninsured population. Not only did the percentage of physicians providing charity care decline from 76 percent in 1996-97 to 68 percent in 2004-05, the number of volunteer hours provided per uninsured person has dropped from 7.7 hours to 6.3, respectively.

Using these national estimates for the average number of charity care hours, the dollar value of the amount of charity care offered by physicians in Kentucky was estimated at approximately $56 million (see Table 5) in 2004—the third largest component (6 percent) of costs for covering the uninsured in Kentucky (see Figure 1).

Out-of-Pocket Costs

The uninsured pay for a large portion of the health care they receive out of their own pockets. According to the survey conducted by the University of Kentucky Survey Research Center, Kentucky's uninsured paid approximately $438 million in out-of-pocket costs for health care in 2004. This constituted approximately 46 percent of the estimated care they received that year (see Figure 1).[23]

As noted earlier, many of the uninsured in Kentucky reported problems paying their bills, had been contacted by collection agencies about medical bills, were unable to pay for basic necessities due to high medical bills or had used all or most of savings to pay medical bills. The average income for uninsured families was in the $20,000 to $25,000 range. Thus, family out-of-pocket costs for health care consumed approximately 6 percent of family income for the uninsured, compared with 3 percent for the insured.

Antidote to Uninsurance in the Commonwealth

The IOM report, *Hidden Costs, Value Lost*, incorporates findings from a study conducted by Jack Hadley and John Holahan, showing that having health insurance increases medical care use.[24] The costs of this "additional care," the difference between the amount of health care services the uninsured actually use and the amount they might be expected to use were they to have coverage, represent new economic costs of expanding coverage to the entire population. Consequently, as Hadley and Holahan note, a central question in the growing debate about whether and how to extend health coverage to uninsured people is the increased cost of such coverage relative to the current cost associated with their lack of coverage.

To answer their question, Hadley and Holahan developed a model using national data from the Medical Expenditure Panel Survey to project how much more health care the uninsured would use if they had full coverage. The model estimates the medical expenses of the insured who "look like" the uninsured. They modeled the behavior of people with insurance and incomes in the low and lower-middle income range (under 400 percent of the poverty level). Based on their model, they concluded that the uninsured would increase their per-person demand by 39 percent were they to gain full-year coverage.[25]

To determine what that would translate to in dollar costs, we turned to the Kentucky Health Insurance Research Project's household survey, which found that average out-of-pocket expenses for the uninsured were approximately $690 per person (see Table 6). Using the earlier estimate of 46 percent as the share of total medical expenses the uninsured pay out of their own pockets (see Figure 1), we estimate that the average total medical expenses for uninsured Kentuckians was approximately $1,480 per person for the year examined. If the uninsured were to increase their consumption of health care and, therefore, cause medical expenses to rise by 39 percent on average, the average estimated cost per uninsured Kentuckian would increase by an estimated $577 per person to a total cost of approximately $2,057 per person annually.

TABLE 6 Simulated Annual Per Person and Aggregate Health Care Costs for the Uninsured, Current and Assuming Full-Year Coverage of Health Care Costs, Kentucky, 2004	
Per Uninsured Kentuckian	
Average Out-of-Pocket Costs	$690
Average Uncompensated Medical Expenses *	$790
Total Average per Person Current Costs	$1,480
Per Person Estimated Additional Costs of Full-Year Health Care	$577
Total Aggregate per Person Costs of Current Health Care	$2,057
Total Aggregate Current Costs of Full-Year Health Care Expenses for Uninsured Kentuckians	$940 million
Total Increase in Aggregate Costs of Full-Year Health Care Expenses for Uninsured Kentuckians	$367 million
Total Aggregate Cost of Full-Year Health Care Expenses for Uninsured Kentuckians	$1.3 billion

*Assumes out-of-pocket costs are 46% of estimated medical expenditures for the uninsured
Source: Hadley and Holahan, 2004; Kentucky Health Insurance Research Project, 2005 Household Survey

When we multiply the estimated increased cost per uninsured person by the number of nonelderly Kentuckians without health insurance at some point during the previous year (635,000), the aggregate total cost for the uninsured increases to approximately $1.3 billion. Given that Kentucky already spends an estimated $940 million to provide care to the uninsured, the additional cost of health care consumed by the uninsured would be approximately $367 million.

Benefits and Costs. Table 7 summarizes the benefits of providing health care coverage to the uninsured comparable to the coverage the insured have. Here, we conservatively estimate that nearly $1 billion is currently being spent in Kentucky to provide health care to uninsured people through uncompensated care and out-of-pocket spending. Further, we estimate that the uninsured incur an estimated $621 million to $1.2 billion in losses associated with the lower quality of life, poorer health, and higher death rates associated with the health and financial risks of being uninsured.

Were Kentucky's uninsured to receive full coverage, they would no longer bear the cost of forgone health and financial risk due to uninsurance. This cost would instead be recaptured in the form of a benefit to the state. While the cost of meeting the health care costs of the uninsured in Kentucky would be approximately $367 million more than current estimated spending, from a broad societal perspective, the measurable benefits exceed the additional cost of this coverage by somewhere between $254 million and $871 million. Or, in other words, the estimated benefits realized from meeting the health care needs of the uninsured outweigh the costs by a ratio of approximately 1.7 to 1 at the lowest range of values and 3.4 to 1 at the highest.

By way of illustrating the gains coverage offers society at large, or, in this case, a state, a 2003 study by the University of Minnesota School of Public Health found that every 1 percentage point increase in enrollment in MinnesotaCare, a subsidized state program for low-income adults who do not qualify for Medicaid, correlated with a $2.19 per capita decrease in uncompensated care spending.[26] In short, public investment in covering the uninsured yielded a measurable benefit for all residents of Minnesota, which has consistently registered the nation's lowest uninsured rates for a number of years.[27] Moreover, the findings of this study suggest that the savings realized by health care providers theoretically could be passed on to insurers and their customers, resulting in lower health care costs for all.

Conclusion

Undoubtedly, the highest cost associated with the problem of uninsurance, that of forgone health and life, is borne by people who do not have health insurance. And their numbers are growing. As a consequence, more people are living sicker and delaying medical care that could prevent or cure illnesses and forestall the costly complications of chronic diseases. Worse yet, many people are dying long before they should. The combined effect of higher rates of morbidity and mortality place a heavy burden on dependent families and households, workplaces, communities, and governments. In turn, we are all adversely affected, because the very institutions on which we rely for everything from our own health care to the public services government provides are compromised by the costs associated with populations who do not have ready access to health care.

Much of the cost borne by society is not readily quantifiable, but measurable costs, even by conservative estimates, exceed estimates for the cost of additional health care consumed were the uninsured to have access to health care comparable to that of the insured. At the national level, the IOM concluded that the economic value of forgone health alone—between $65 billion and $130 billion—exceeded the estimated $34 to $69 billion in increased spending needed to meet the anticipated health care costs of 40 million uninsured people in the United States.[28] Based on our estimates, which follow the methodology developed by the IOM, we arrive at much the same conclusion about the Commonwealth. That is, we find that the approximate $621 million to $1.2 billion in economic value of forgone health and financial uncertainty related to uninsurance in the state exceeds the increase in cost of medical care consumed were uninsured Kentuckians given access to health care services comparable to that of the insured population.

TABLE 7 Benefits and Costs for the Uninsured, Assuming Full-Year Coverage of Health Care Costs, 2004 (in millions of dollars)			
	Low	Mid	High
Benefits	$621	$929	$1,238
Costs	$367	$367	$367
Benefits Minus Costs	$254	$563	$871
Ratio of Benefits to Costs	1.7	2.5	3.4

Appendix 1

Methodology and Framework of the Institute of Medicine's

Hidden Costs, Value Lost: Uninsurance in America (2003)

The health capital model estimates the impact of health-related quality of life on the value of a "statistical" or anonymous life (VSL), specifically morbidity and mortality related to uninsurance. The IOM study assigns a mid-range value for a statistical healthy year of life at $160,000, which corresponds to an average value of $4.8 million for a lifetime.[29] By comparison, for example, when the Environmental Protection Agency evaluated the costs and benefits of regulating clean air through vehicle emissions standards, they used $6.1 million as the value of a statistical life for the purposes of the health benefits estimates incorporated in their analysis.

Several challenges ensue in attempting to measure health, including the difficulty of deriving its value from market prices and its multidimensional nature which encompasses mortality, physical and mental well-being and functioning. Given the difficulty of defining and measuring health, the IOM study adopted the analytic construct of "health capital" in order to capture the many facets that constitute the value of health to individuals. Health capital, a concept analogous to human capital, accounts for the value that people assign to their lives and health beyond their future earnings. Vigdor's analysis, which constitutes the primary contribution of the IOM study to the issue of the cost of uninsurance, is based on the concept of personal utility as identified in welfare economics, which can be converted into monetary terms. While human capital can be easily calculated as the value of future earnings relative to educational attainment or a person's stock of knowledge, it is an

inadequate measure of health capital, in that people value healthy life years for more reasons than their ability to earn income.

Estimating this value involves collapsing the elements of health into a quality-adjusted life expectancy and assigning this estimate a dollar value. To get to this final value, the method begins with rating a person's health-related quality of life (HRQL) on a scale ranging from 0 (for death) to 1 (for perfect health). As morbidity is incorporated, the HRQL weight falls somewhere within this range. A particular HRQL weight represents the number of healthy years that are equivalent to a year in a particular health state and is referred to as a quality-adjusted life year (QALY). For any given year in the future, the expected QALY is the sum of each probability that a person will have a particular disease profile that year multiplied by the expected HRQL from having that set of diseases. These expected QALYs are then discounted at a rate of 3 percent to their present values and summed to yield a quality-adjusted life expectancy.

The analysis estimates the value of QALYs according to mortality only and then incorporates morbidity to produce a lower and upper bound on the possible values for health capital lost due to uninsurance. In estimating the differences between the insured and uninsured in QALYs, Vigdor first assumes only two possible health states, perfect health (HRQL=1) and death (HRQL=0). The expected QALY for a given year in the future is simply the probability that a person is alive in that year. Vigdor assumes an excess mortality risk of 25 percent for the uninsured population ages 1 to 65 based on research by the IOM and other health outcomes literature. Then she incorporates morbidity by assuming that the two populations have the same disease prevalence and health-related quality of life (HRQL), varying the prevalence by age and gender only. Then she assumes variations in these two groups by insurance status. The effect of insurance on health capital using the first assumption reflects on the mortality differential and provides a lower bound. The second scenario assumes that the entire measured difference in health is attributable to insurance status and gives the upper bound value. To measure disease prevalence, she uses data on 15 chronic conditions and impairments from the National Health Interview Survey and the Surveillance, Epidemiology, and End Results database. She uses the value of a statistical life year of $160,000 to monetize these estimates by multiplying the quality-adjusted life expectancy by the value of a year in perfect health.

After calculating health capital as a function of insurance status under each set of assumptions, Vigdor estimated how much health would be gained if the current population of uninsured individuals had coverage. This is done by estimating the difference in health capital between the insured and the uninsured.[30] She finds that the average value of health capital (i.e., quality-adjusted life years) that could be gained with a year of insurance for a member of the uninsured population ranges from $1,645 to $3,280 in 2001 dollars. Although considerable uncertainty is involved, these assumptions should produce conservative estimates. For instance, the estimates assume no cumulative or permanent adverse impacts to health as a result of previous spells of uninsurance.

Research also shows that having health insurance increases consumption of health care services.[31] *Hidden Costs, Value Lost* incorporates research from Jack Hadley and John Holahan that estimates the value of the additional services the uninsured would consume were they to receive access to coverage comparable to

that of the insured population.[32] These analyses help predict the new costs (at the societal level) of the additional services that those who are now uninsured would use if they gained health insurance.

The cost projections do not speak to the distribution of new costs among taxpayers, enrollees, and other payers nor do they make any assumptions about redistribution of present cost burdens for care provided to the uninsured among payers and providers of that care. The forecasts also assume no major differences in the mix of plans that would cover the uninsured from those which now cover privately or publicly insured populations, in terms of scope of benefits, extent of coverage (levels of deductibles, copayments, stop losses and other cost-sharing elements), or utilization review and other care management practices. This paper does not address any particular proposal to cover the uninsured. Moreover, the additional cost of health care used by individuals were they to receive insurance does not represent the state's budgetary costs, which could be higher or lower depending on the details of the particular policies enacted.

[1] Carmen DeNavas-Walt, Bernadette D. Proctor, and Cheryl Hill Lee, U.S. Census Bureau, *Income, Poverty, and Health Insurance Coverage in the United States: 2004, Current Population Reports* P60-229 (Washington: U.S. Dept. of Commerce, 2005) 16.

[2] Jack Hadley, "Sicker and Poorer—The Consequences of Being Uninsured: A Review of the Research on the Relationship between Health Insurance, Medical Care Use, Health, Work, and Income," Medical Care Research and Review 60.2 (Supplement to June 2003): 65S; Jack Hadley, *Sicker and Poorer, the Consequences of Being Uninsured*, May 2002, <http://www.kff.org/uninsured/upload/Full-Report.pdf>; Institute of Medicine (IOM) of the National Academies, *Care Without Coverage; Too Little, Too Late* (2002).

[3] IOM, *Care Without Coverage*, 162.

[4] Commission on a High Performance Health System, The Commonwealth Fund, "A Need to Transform the U.S. Health Care System: Improving Access, Quality, and Efficiency," Oct. 2005.

[5] IOM, *Insuring Health: The Six Reports and Summaries of the Committee on the Consequences of Uninsurance* (Washington, DC: The National Academies Press, 2001-2004).

[6] See for example, John Holahan, Randall Bovbjerg, and Jack Hadley, *Caring for the Uninsured in Massachusetts: What Does it Cost, Who Pays, and What Would Full Coverage Add to Medical Spending?* Report for the Blue Cross Blue Shield of Massachusetts Foundation, Nov. 2004; Hugh Waters, Laura Steinhardt, Thomas Oliver, Jason Gerson, Alice Burton, Susan Milner, and Stacey Davis, *The Costs of Not Having Health Insurance in the State of Maryland*, Maryland HRSA State Planning Grant, 2003; The Texas State Comptroller's Office, *Texas Estimated Health Care Spending on the Uninsured*, 1999.

[7] The White House Council of Economic Advisers, Reaching the Uninsured: Alternative Approaches to Expanding Health Insurance Access (Washington: U.S. Government Printing Office, Sept. 2000).

[8] Hadley, "Sicker and Poorer …Review of the Research," 65S.

9 IOM, *Care Without Coverage*, Appendix A.

10 IOM, *Care Without Coverage*, 1-2.

[11] The term "costs" in this and the IOM study refer to economic costs associated with uninsurance, or the value of resources devoted to one purpose that are not then available for alternative uses. In contrast, transfer costs, which are designated in Table 1, represent a redistribution of resources between individuals or other economic agents, rather than a change in economic cost or value. For example, Social Security Disability Insurance payments are transfers of resources from the federal program to its beneficiaries and reflect a "program cost"; however, the transfer payment is not an economic cost in that no resources were lost or gained by society or the economy as a whole.

12 IOM, *Hidden Costs*, x.

13 IOM, *Hidden Costs*.

14 See, for example, David M. Cutler, Elizabeth Richardson, "Measuring the Health of the United States Population," *Brookings Papers on Economic Activity, Microeconomics,* 1997;

David M. Cutler and Elizabeth Richardson, "The Value of Health, 1970-1990," *American Economic Review*, 88.2 (1998); David M. Cutler and Elizabeth Richardson, "Your Money and Your Life: The Value of Health and What Affects It," Frontiers of Health Policy Research, National Bureau of Economic Research 2 (1998); and Michael Grossman, "On the Concept of Health Capital and the Demand for Health," Journal of Political Economy 80.2 (1972): 223-255.

[15] IOM, *Hidden Costs*.

[16] Aggregate values inflation-adjusted to 2004 dollars.

[17] The relatively small cost reflects the fact that the uninsured do not bear the full burden of the risk associated with the costs of their medical care due to the amount of uncompensated care that exists to help offset some of this risk.

[18] Aggregate values inflation-adjusted to 2004 dollars.

[19] Uncompensated costs for the remaining providers were not available.

[20] This is a conservative estimate of uncompensated care. It does not include the cost of care provided by rural health clinics, primary care centers, other charity care, or local health departments. The only providers of uncompensated care that are included in this cost estimate are hospitals, free clinics, community health centers, and physicians' charity care.

[21] State Health Access Data Assistance Center (SHADAC).

[22] Bureau of Primary Health Care, Health Resources and Services Administration, "America's Health Centers: Models for Quality Primary Health Care," U.S. Department of Health and Human Services, 2004, 1 June 2006 <http://bphc.hrsa.gov/chc/charts/healthcenters.htm>.

[23] The uncompensated care costs estimated here are admittedly conservative in that they do not include estimates from many of the provider types that more than likely also provide uncompensated care to the uninsured, including the local health departments, rural health clinics and primary care centers. Therefore, were these values included in the total cost of care to the uninsured, the portion paid for out-of-pocket by the uninsured themselves would decline.

[24] Hadley and Holahan, "Covering the Uninsured: How Much Would It Cost?" *Health Affairs*, 2003.

[25] Hadley and Holahan, "The Cost of Care for the Uninsured: What Do We Spend, Who Pays, And What Would Full Coverage Add to Medical Spending?" Issue Update, Kaiser Commission on Medicaid and the Uninsured, 10 May 2004.

[26] SHADAC, "Expanding Access to Health Insurance Coverage Lessens the Burden of Uncompensated Care," *Issue Brief* 8 (2003).

[27] DeNavas-Walt et al. 27.

[28] IOM, *Insuring Health*.

[29] This estimate is based on certain assumptions regarding discount rate and life expectancy and therefore will vary as those assumptions vary.

[30] The methods used would ideally account for differences not attributable to insurance alone, however, this is difficult in practice. Other unobserved factors may account for effects attributed to having or lacking health insurance.

[31] For comprehensive summaries of this extensive literature, see Hadley, 2003; Hadley, 2002; IOM, 2002; and American College of Physicians, *No Health Insurance? It's Enough to Make You Sick* (Philadelphia: ACP, 1999).

[32] IOM, 2003; Hadley and Holahan, 2003.

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